United States Patent 5,852,434

Sekendur December 22, 1998

Absolute optical position determination

Abstract

The present invention is a form of a digitizer and absolute position determination device for indicating the instantaneous position and movement of a stylus on a surface. It proposes the use of a data surface (e.g., paper) formatted with a position-related code for indicating X-Y coordinates capable of reflecting a frequency of light. The stylus FIG. 6 comprising a writing element 9 in FIG. 6 has a light source 17 in FIG. 6 of a frequency for illuminating the position-related code. The frequency of light is absorbed by the data surface but reflected by the position-related code onto a charge-coupled device (CCD) 13 in FIG. 6 located within the stylus. The coordinate information from the CCD is sent to a computer for processing and finally the desired information output to the user. The frequency(s) of light to be used depends on the application. For example, an infrared light source and infrared light reflecting position-related code can be used for hand writing on paper. The position-related code is invisible to the user and thus does not interfere with the visible writing formed by the writing element. During the process of writing on the data surface, the data surface is scanned of coordinates along the path of the writing element whereby the light is reflected by the position-related code onto the CCD. The coordinate data from the CCD is sent to the computer for analysis, and finally output to a computer display or computer printer. Through the use of handwriting recognition software, the output can be converted to a "keyboard-typed" representation of the handwritten text.

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